AMENDMENTS TO THE SPECIFICATION:

Please amend page 27, line 26 through page 28, line 7 as follows:

Referring to FIG. 10A, a diamondoid-containing material suitable for use as a biological label having a nitrogen-vacancy or nitrogen-pore color center is depicted generally at 1001. Individual diamondoids 1002, 1003, and 1004 pack with individual heterodiamondoids 1005, 1006, and 1007 forming a pore 1008 generally at the center of the group. Heterodiamondoids 1005, 1006, and 1007 pack, assemble, or are otherwise constructed such that their nitrogen heteroatoms are generally positioned adjacent to pore or vacancy 1008 forming a structure that resembles an N3 color center 1009. It will be understood by those skilled in the art that many possible combinations of pore sizes, types of heteroatom bonding within each heterodiamondoid, valence structure of each heteroatom within the heterodiamondoid, geometrical positioning and configuration of diamondoids and heterodiamondoids to one another, packing density of diamondoids, etc., are possible. Thus, it is possible to control the optical properties of the color center 1009 within the diamondoid-containing material ~~molecular crystal~~ 1001 to achieve the desired photoluminescing light properties.

Please amend page 37, lines 24-34 of the specification as follows:

The cell transport properties of adamantine (1-amino adamantane, $C_{10}H_{17}N$) have been discussed by Roger K. Murray, professor at Saint Joseph's University, who has stated in his Research Interests (http://www.sju.edu/cas/chemistry/rmurray/research.html) that "amantadine enters all cell membranes, crosses the blood-brain barrier, and has nearly ideal pharmacokinetic and metabolic profiles." A further discussion of membrane permeation has been provided by ~~Verber~~ Veber et. al. (GlaxoSmithKline; ~~Verber~~ Veber et al., *J. Med. Chem.* *45*, 2615 (2002)), who has disclosed that membrane permeation is recognized as a common requirement for oral bioavailability in the absence of active transport, and failure to achieve this usually results in poor oral bioavailability. ~~Verber's~~ Veber's work included making measurements of the oral bioavailability in rats of over 1,100 drug candidates. The results showed that key molecular properties such as reduced molecular flexibility, as measured by the number of rotatable bonds, low polar surface area or total hydrogen bond count, are found to be good predictors of oral bioavailability.

Please amend page 38, lines 10-23 of the specification as follows:

The biolabels of the present embodiments are contemplated to possess desirable properties relating to bioavailability, in part because of the manner in which a molecule's physical predicts bioavailability. As defined by ~~Verber~~ Veber et al., these properties may include the number of rotatable bonds the biolabel possesses, the number of hydrogen bond donors or acceptors, and the amount of polar surface area of the label.

~~Verber~~ Veber defines rotatable bonds to be any single bond, not in a ring, bound to a nonterminal heavy (i.e. non-hydrogen atom), and the heterodiamondoid-containing materials of the present embodiments may contain virtually no rotatable bonds. It is noted that C-N bonds were excluded from ~~Verber's~~ Veber's analysis because of their high rotational energy barrier. Hydrogen bond donors were defined to be any heteroatom with at least one bonded hydrogen, whereas hydrogen bond acceptors were defined to be any heteroatom without a formal positive charge, excluding halogens, pyrrole nitrogen, heteroaromatic oxygen and sulfur, and higher oxidation states of nitrogen, phosphorous, and sulfur but including the oxygens bonded to them.

Please amend page 38, line 31 through page 39, line 16 of the specification as follows:

It is contemplated that the biolabels of the present embodiments will have advantageous bioavailability properties because they meet ~~Verber's~~ Veber's requirements of about 10 or fewer rotatable bonds, and less than about 140 square angstroms of polar surface area, or alternatively, 12 or fewer H-bond donors and acceptors. This is particularly true for the biolabel shown in FIG. 10B, the fluorescing portion of that biolabel comprising a cluster of four tetramantanes with at least one nitrogen-based heteroatom for desired optical properties. Of course, it will be recognized by those skilled in the art that diamondoids other than tetramantane may also be used. The advantages of the present biolabels include the extraordinary rigidity of the diamondoid portion of the label, and the relative lack of flexible structures such as rotatable bonds.

In one embodiment of the present invention, the biolabel comprises at least four diamondoid structures of tetramantane or higher, having fewer than about 25 rotatable bonds, less than about 500 total polar surface area, square angstroms of polar surface area, or

alternatively, 25 or fewer H-bond donors and acceptors. A molecular weight estimate of about 1,200 for a biolabel comprising four tetramantanes ($C_{22}H_{28}$, each having a molecular weight of 292) and at least one nitrogen heteroatom to provide a fluorescing color center) is contemplated to be within the weight limits (according to ~~Verber's~~ Veber's calculations) for molecules having good bioavailability.